

SAIC0042-DIV1
Serial Number: 10/797,036

PATENT

Amendments To The Claims:

1. (Currently Amended) A switch for use in circuits which interact with electromagnetic radiation, comprising:

- at least one switch comprised of:
- a substrate for supporting components of the switch,
- a first conductive element on said substrate for connection to a first component of said circuit,
- a second conductive element on said substrate for connection to a second component of said circuit, and
- a switch element made up of a switching material on said substrate, and connecting the first conductive element to the second conductive element, said switching material comprised of a compound which exhibits a bi-stable phase behavior, and switchable between a first impedance state value and a second impedance state value by application of energy thereto, affecting current flow between said first conductive element and said second conductive element resulting from a change in the impedance value of said compound, such that electromagnetic energy flowing in the first and second conductive elements resulting from electromagnetic radiation interacting with the circuit containing the switch is either reflected off of the switch or transmitted through the switch depending on the impedance value.

SAIC004:-DIV1
Serial Number: 10/797,036

PATENT

2. (Original) The switch of claim 1, wherein said first and second impedance state values are such that at one value the switch is conductive, and at the other value the switch is from less conductive to being non-conductive.

3. (Original) The switch of claim 1, further comprising an energy source connected to the switch for causing said change in impedance values.

4. (Original) The switch of claim 1, further comprising separate leads connected to said switch for connection to an energy source.

5. (Original) The switch of claim 4, further comprising an energy source connected to the switch through said leads for causing said change in impedance values.

6. (Currently Amended) The switch of claim 1, wherein said first conductive element and said second conductive elements are part of a circuit for coupling with electromagnetic waves which induce current flow in at least one of said first conductive element and said second conductive element.

7. (Original) The switch of claim 1, wherein said switching material comprises chalcogenide alloy.

8. (Original) The switch of claim 7 wherein said alloy comprises $\text{Ge}_{22}\text{Sb}_{22}\text{Te}_{56}$.

SAIC0042-DIV1
Serial Number: 10/797,036

PATENT

9. (Original) The switch of claim 1, wherein said switching material is a thin film material.

10. (Original) The switch of claim 1, wherein said switching material is a reversible phase change material having a variable impedance over a specified range which is dependent on the amount of energy applied to the material.

11. (Original) The switch of claim 1, wherein said first and second conductive elements are the same material as said switching material.

12. (Currently Amended) ~~The switch of claim 1,~~ A switch for use in circuits which interact with electromagnetic radiation, comprising:
at least one switch comprised of:
a substrate for supporting components of the switch;
a first conductive element on said substrate for connection to a first component of said circuit,
a second conductive element on said substrate for connection to a second component of said circuit, and
a switch element made up of a switching material on said substrate, and
connecting the first conductive element to the second conductive element, said switching material comprised of a compound which exhibits a bi-stable phase behavior, and
switchable between a first impedance state value and a second impedance state value by

SAIC0042-DIV1
Serial Number: 10/797,036

PATENT

application of energy thereto, affecting current flow between said first conductive element and said second conductive element resulting from a change in the impedance value of said compound, wherein said first and second conductive elements are the same material as said switching material and said switch element is shaped to switch its phase state to the second impedance state in response to an application of energy to said switch while said conducting elements remain in said first impedance state, and remains in the second impedance state without continuing the application of energy.

13. (Original) The switch of claim 12, wherein the switch element is narrower than the first and second conductive elements.

14. (Original) The switch of claim 12, further comprising separate leads connected to said switch for causing said change in impedance values.

15. (Original) The switch of claim 1, wherein said switch element is shaped to switch its phase state to the second impedance state in response to an application of energy to said switch, and remains in the second impedance state without continuing the application of energy.

16-32 (Cancelled).